

---

## CLAIMS

1. A method for illuminating viruses in a circulatory blood, characterized in that the method includes the steps of:

5       1) Adding an anticoagulant into a whole blood source and establishing a circulation system for the whole blood source;

      2) Withdrawing the whole blood with the anticoagulant into a plasma-separating device for a separation, when finished, directly pumping the red-blood cells back into the whole blood source and transporting the plasma into a mixing transport pump after the separation;

10       3) Meanwhile, pumping a photosensitizer methylene blue into the mixing transport pump so that the methylene blue is mixed with the plasma and pumped together into a plasma container;

      4) Using an illumination device to illuminate the plasma in the plasma container for virus illumination, then pumping the virus-illuminated plasma into a removing device;

15       5) The methylene blue being absorbed by the removing device for removing off the photosensitizer and withdrawing the illuminated plasma back into the whole blood source;

20       6) Repeating the step 2 to the step 5 until the virus load in the whole blood system is reduced by 99.99%.

25       2. The method according to claim 1, wherein the whole blood source is a reserve blood from a blood station, a blood bank, a blood bag or a blood storage device, or is a circulation blood from a tube of blood transfusion.

30       3. The method according to claim 1, wherein the mixing transport pump is a peristaltic pump, which transfers the plasma at a speed of 30 to 150 ml per minute, and the photosensitizer is inputted and transferred at 1% of the speed transferring the plasma.

      4. The method according to claim 1, wherein a light source in the illumination device is a set of LEDs. The time for the plasma flowed into the plasma container to be illuminated by the light source of the

---

illumination device is 60 seconds.

5        5. The method according to claim 1, wherein the plasma container is a sealed container having two tubes at each side, placed in the illumination device.

6. The method according to claim 1, wherein an adsorbent used in the removing device is an attapulgate.

10       7. The method according to any one of claim 1 to 6, wherein the pump, the tube, the plasma separating device and the plasma container used in the step 1 to the step 5 are all aseptic and are disposable sealed systems isolated from the outside environment.

15       8. A usage of the method according to any one of claim 1 to 7, which is used to illuminate viruses in the circulatory blood of organism.

20       9. A usage of the method according to any one of claim 1 to 7, which is used in the treatment of virus-disease; the detailed steps comprising establishing an extracorporeal circulation for a patient, illuminating the viruses in the separated plasma and then mixing the illuminated plasma with the previously separated red-blood cells and other components, etc., transfusing the mixed blood back into the body of the patient and repeating the above procedure.

25  
  
30  
  
35       **BEST AVAILABLE COPY**